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SCHOOL'S WIND TURBINES POWER LEARNING

By Lloyd B. Cunningham

SPIRIT LAKE, Iowa — Towering more than 12 stories above a school playground, a pair of wind turbines transform the gusts blowing over the lakes and ridges surrounding this northern Iowa town into power that provides about half of the school district's electrical needs.

Students here can "look right out the back door" to see the giant turbines capture the wind and learn how they can produce power, Spirit Lake schools Superintendent Doug Latham says.

More than 80 schools across the USA have installed some type of wind turbine, says Ian Baring-Gould, senior engineer in a wind technology center at the National Renewable Energy Laboratory in Golden, Colo.

Now, a program called Wind for Schools is aiming to bring smaller turbines to six states: Colorado, Idaho, Kansas, Montana, Nebraska and South Dakota. The program, sponsored by the U.S. Department of Energy's Wind Powering America program at the National Renewable Energy Laboratory, is the first program to use smaller turbines with a mission of educating students and the community about wind power, Baring-Gould says.

In Faith, S.D., home to one of the schools hoping to build a small wind turbine in the next couple of years, a fierce wind blows across the plains most days.

Angela King, who teaches science in grades 7 to 12 in Faith, believes a turbine will give students learning about wind energy the chance to "see it happening, rather than just reading it in a book."

Much of the first year of the three-year program has been spent identifying schools hoping to participate; South Dakota, for instance, announced its eight school districts over the summer, says Steve Kolbeck, a state public utilities commissioner.

About five schools in Kansas



have the turbines, and schools in Montana, Idaho and South Dakota are now preparing sites and will have them installed during this school year, Baring-Gould says.

Now, the goal is to add wind turbines at about five schools per year in each state, for a total of about 30 per year overall, Baring-Gould says.

The turbines will be on towers up to 70 feet tall, and it's projected that they will produce around 3,000 to 4,000 kilowatt hours per year, which is generally enough to provide only a fraction of a school's electric needs, Baring-Gould says.

The price of a wind turbine will be about \$6,000 in out-of-pocket costs, according to a Department of Energy project summary.

State grants may provide some of that cost, the summary states, and many project participants donate their time.

Curriculum guides for grade levels kindergarten through 12 are part of the program.

"The curriculum piece that goes with it is just as important as the hardware," says Tom Potter, the Colorado facilitator for Wind for Schools.

The curriculum will help train workers for the booming wind industry — an important aim of the overall program, Baring-Gould says.

"It's a big growth industry, and it's going to get even bigger," says Mick Womersley, an associate professor at Unity College in Unity, Maine.

Wind energy provided less than 1% of the USA's electricity at the end of 2006 but is expected to provide 20% of the nation's electricity by 2030 if the industry's annual growth of 25%-30% continues, according to Colorado Wind for Schools, which coordinates the program there.

Workers knowledgeable about the turbines will be needed, including people who know how to find suitable locations for them, a key skill, Womersley says. Womersley helped students build a turbine at Unity using a rebuilt car part — an alternator — purchased from an auto parts store. It was damaged last spring by gales, so Womersley is having his students shop around for a good turbine this semester. He didn't tell them which one to buy. "We'll get as much teaching out of it as we can," he says.

Martin reports for the Argus Leader in Sioux Falls, S.D.